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1644

TECH CENTER 1600/2900

DATE: 04/08/2002
TIME: 10:39:40

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/454,651B

Input Set : A:\SEQLIST.txt
Output Set: N:\CRF3\04082002\I454651B.raw

ENTERED

```
              SEQUENCE LISTING
C-->  5  (1) GENERAL INFORMATION:
      7       (i) APPLICANT: Linsley, Peter S.
      8                      Ledbetter, Jeffrey A.
      9                      Damle, Nitin K.
     10                      Brady, William
     11                      Wallace, Philip M.
C--> 13      (ii) TITLE OF INVENTION: CTLA4/CD28Ig HYBRID FUSION
     14                               PROTEINS AND USES THEREOF
     16     (iii) NUMBER OF SEQUENCES: 33
     18      (iv) CORRESPONDENCE ADDRESS:
     19           (A) ADDRESSEE: Mandel & Adriano
     20           (B) STREET: 35 N. Arroyo Parkway, Suite 60
     21           (C) CITY: Pasadena
     22           (D) STATE: California
     23           (E) COUNTRY: USA
     24           (F) ZIP: 91103
     26       (v) COMPUTER READABLE FORM:
     27           (A) MEDIUM TYPE: Diskette
     28           (B) COMPUTER: IBM Compatible
     29           (C) OPERATING SYSTEM: DOS
     30           (D) SOFTWARE: FastSEQ Version 2.0
     32      (vi) CURRENT APPLICATION DATA:
     33           (A) APPLICATION NUMBER: US/09/454,651B
C--> 33           (B) FILING DATE: 06-Dec-1999
C--> 34           (C) CLASSIFICATION:
     35     (vii) PRIOR APPLICATION DATA:
     37           (A) APPLICATION NUMBER: 08/228,208
     38           (B) FILING DATE: 15-APR-1994
     39           (A) APPLICATION NUMBER: 08/008,898
     41           (B) FILING DATE: 22-JAN-1993
     42           (A) APPLICATION NUMBER: 07/723,617
     44           (B) FILING DATE: 27-JUL-1991
     45    (viii) ATTORNEY/AGENT INFORMATION:
     48           (A) NAME: Adriano, Sarah B
     49           (B) REGISTRATION NUMBER: 34,470
     50           (C) REFERENCE/DOCKET NUMBER: 30436.30USD1
     51      (ix) TELECOMMUNICATION INFORMATION:
     53           (A) TELEPHONE: 626 395-7801
     54           (B) TELEFAX: 626 395-0694
     55           (C) TELEX:
     56  (2) INFORMATION FOR SEQ ID NO: 1:
     59       (i) SEQUENCE CHARACTERISTICS:
     60
```

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Input Set : A:\SEQLIST.txt
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```
61              (A) LENGTH: 39 base pairs
62              (B) TYPE: nucleic acid
63              (C) STRANDEDNESS: single
64              (D) TOPOLOGY: linear
65       (ii) MOLECULE TYPE: DNA (genomic)
66       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
68 CTAGCCACTG AAGCTTCACC ATGGGTGTAC TGCTCACAC                         39
71 (2) INFORMATION FOR SEQ ID NO: 2:
72       (i) SEQUENCE CHARACTERISTICS:
73              (A) LENGTH: 39 base pairs
74              (B) TYPE: nucleic acid
75              (C) STRANDEDNESS: single
76              (D) TOPOLOGY: linear
77       (ii) MOLECULE TYPE: DNA (genomic)
78       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
80 TGGCATGGGC TCCTGATCAG GCTTAGAAGG TCCGGGAAA                          39
83 (2) INFORMATION FOR SEQ ID NO: 3:
84       (i) SEQUENCE CHARACTERISTICS:
85              (A) LENGTH: 39 base pairs
86              (B) TYPE: nucleic acid
87              (C) STRANDEDNESS: single
88              (D) TOPOLOGY: linear
89       (ii) MOLECULE TYPE: DNA (genomic)
90       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
92 TTTGGGCTCC TGATCAGGAA AATGCTCTTG CTTGGTTGT                          39
95 (2) INFORMATION FOR SEQ ID NO: 4:
96       (i) SEQUENCE CHARACTERISTICS:
97              (A) LENGTH: 84 base pairs
98              (B) TYPE: nucleic acid
99              (C) STRANDEDNESS: single
100   .          (D) TOPOLOGY: linear
101      (ii) MOLECULE TYPE: DNA (genomic)
102      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
104 AAGCAAGAGC ATTTTCCTGA TCAGGAGCCC AAATCTTCTG ACAAAACTCA CACATCCCCA  60
106 CCGTCCCCAG CACCTGAACT CCTG                                         84
109 (2) INFORMATION FOR SEQ ID NO: 5:
110       (i) SEQUENCE CHARACTERISTICS:
111             (A) LENGTH: 41 base pairs
112             (B) TYPE: nucleic acid
113             (C) STRANDEDNESS: single
114             (D) TOPOLOGY: linear
115      (ii) MOLECULE TYPE: DNA (genomic)
116      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
118 CTTCGACCAG TCTAGAAGCA TCCTCGTGCG ACCGCGAGAG C                      41
121 (2) INFORMATION FOR SEQ ID NO: 6:
122       (i) SEQUENCE CHARACTERISTICS:
123             (A) LENGTH: 47 base pairs
124             (B) TYPE: nucleic acid
125             (C) STRANDEDNESS: single
```

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```
126            (D) TOPOLOGY: linear
127      (ii) MOLECULE TYPE: DNA (genomic)
128      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
130 CATTGCACAG TCAAGCTTCC ATGCCCATGG GTTCTCTGGC CACCTTG                    47
133 (2) INFORMATION FOR SEQ ID NO: 7:
134      (i) SEQUENCE CHARACTERISTICS:
135            (A) LENGTH: 39 base pairs
136            (B) TYPE: nucleic acid
137            (C) STRANDEDNESS: single
138            (D) TOPOLOGY: linear
139      (ii) MOLECULE TYPE: DNA (genomic)
140      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
142 ATCCACAGTG CAGTGATCAT TTGGATCCTG GCATGTGAC                             39
145 (2) INFORMATION FOR SEQ ID NO: 8:
146      (i) SEQUENCE CHARACTERISTICS:
147            (A) LENGTH: 65 base pairs
148            (B) TYPE: nucleic acid
149            (C) STRANDEDNESS: single
150            (D) TOPOLOGY: linear
151      (ii) MOLECULE TYPE: DNA (genomic)
152      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
154 CTCAGTCTGG TCCTTGCACT CCTGTTTCCA AGCATGGCGA GCATGGCAAT GCACGTGGCC       60
156 CAGCC                                                                  65
159 (2) INFORMATION FOR SEQ ID NO: 9:
160      (i) SEQUENCE CHARACTERISTICS:
161            (A) LENGTH: 33 base pairs
162            (B) TYPE: nucleic acid
163            (C) STRANDEDNESS: single
164            (D) TOPOLOGY: linear
165      (ii) MOLECULE TYPE: DNA (genomic)
166      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
168 TTTGGGCTCC TGATCAGAAT CTGGGCACGG TTG                                   33
171 (2) INFORMATION FOR SEQ ID NO: 10:
172      (i) SEQUENCE CHARACTERISTICS:
173            (A) LENGTH: 72 base pairs
174            (B) TYPE: nucleic acid
175            (C) STRANDEDNESS: single
176            (D) TOPOLOGY: linear
177      (ii) MOLECULE TYPE: DNA (genomic)
178      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
180 CTAGCCACTG AAGCTTCACC AATGGGTGTA CTGCTCACAC AGAGGACGCT GCTCAGTCTG       60
182 GTCCTTGCAC TC                                                          72
185 (2) INFORMATION FOR SEQ ID NO: 11:
186      (i) SEQUENCE CHARACTERISTICS:
187            (A) LENGTH: 33 base pairs
188            (B) TYPE: nucleic acid
189            (C) STRANDEDNESS: single
190            (D) TOPOLOGY: linear
191      (ii) MOLECULE TYPE: DNA (genomic)
```

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PATENT APPLICATION: US/09/454,651B

DATE: 04/08/2002
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Input Set : **A:\SEQLIST.txt**
Output Set: **N:\CRF3\04082002\I454651B.raw**

```
192      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
194 GCAATGCACG TGGCCCAGCC TGCTGTGGTA GTG                        33
197 (2) INFORMATION FOR SEQ ID NO: 12:
198      (i) SEQUENCE CHARACTERISTICS:
199          (A) LENGTH: 45 base pairs
200          (B) TYPE: nucleic acid
201          (C) STRANDEDNESS: single
202          (D) TOPOLOGY: linear
203     (ii) MOLECULE TYPE: DNA (genomic)
204     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:
206 TGATGTAACA TGTCTAGATC AATTGATGGG AATAAAATAA GGCTG          45
209 (2) INFORMATION FOR SEQ ID NO: 13:
210      (i) SEQUENCE CHARACTERISTICS:
211          (A) LENGTH: 561 nucleotides
212          (B) TYPE: nucleic acid
213          (C) STRANDEDNESS: single
214          (D) TOPOLOGY: linear
215     (ii) MOLECULE TYPE: DNA (genomic)
216     (ix) FEATURE:
217          (A) NAME/KEY: CDS
218          (B) LOCATION: 1..561
220     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
222 GCA ATG CAC GTG GCC CAG CCT GCT GTG GTA CTG GCC AGC AGC CGA GGC    48
223 Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala Ser Ser Arg Gly
224  1               5                  10                  15
226 ATC GCC AGC TTT GTG TGT GAG TAT GCA TCT CCA GGC AAA GCC ACT GAG    96
227 Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly Lys Ala Thr Glu
228              20                  25                  30
230 GTC CGG GTG ACA GTG CTT CGG CAG GCT GAC AGC CAG GTG ACT GAA GTC   144
231 Val Arg Val Thr Val Leu Arg Gln Ala Asp Ser Gln Val Thr Glu Val
232          35                  40                  45
234 TGT GCG GCA ACC TAC ATG ATG GGG AAT GAG TTG ACC TTC CTA GAT GAT   192
235 Cys Ala Ala Thr Tyr Met Met Gly Asn Glu Leu Thr Phe Leu Asp Asp
236      50                  55                  60
238 TCC ATC TGC ACG GGC ACC TCC AGT GGA AAT CAA GTG AAC CTC ACT ATC   240
239 Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val Asn Leu Thr Ile
240  65                  70                  75                  80
242 CAA GGA CTG AGG GCC ATG GAC ACG GGA CTC TAC ATC TGC AAG GTG GAG   288
243 Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu
244              85                  90                  95
246 CTC ATG TAC CCA CCG CCA TAC TAC CTG GGC ATA GGC AAC GGA ACC CAG   336
247 Leu Met Tyr Pro Pro Pro Tyr Tyr Leu Gly Ile Gly Asn Gly Thr Gln
248             100                 105                 110
250 ATT TAT GTA ATT GAT CCA GAA CCG TGC CCA GAT TCT GAC TTC CTC CTC   384
251 Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser Asp Phe Leu Leu
252         115                 120                 125
254 TGG ATC CTT GCA GCA GTT AGT TCG GGG TTG TTT TTT TAT AGC TTT CTC   432
255 Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe Tyr Ser Phe Leu
256         130                 135                 140
```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/454,651B

DATE: 04/08/2002
TIME: 10:39:40

Input Set : **A:\SEQLIST.txt**
Output Set: **N:\CRF3\04082002\I454651B.raw**

```
258  CTC ACA GCT GTT TCT TTG AGC AAA ATG CTA AAG AAA AGA AGC CCT CTT          480
259  Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys Arg Ser Pro Leu
260  145             150             155             160
262  ACA ACA GGG GTC TAT GTG AAA ATG CCC CCA ACA GAG CCA GAA TGT GAA          528
263  Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu Pro Glu Cys Glu
264              165             170             175
266  AAG CAA TTT CAG CCT TAT TTT ATT CCC ATC AAT                             561
267  Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn
268          180             185
271  (2) INFORMATION FOR SEQ ID NO: 14:
272       (i) SEQUENCE CHARACTERISTICS:
273            (A) LENGTH: 187 amino acids
274            (B) TYPE: amino acid
275            (D) TOPOLOGY: linear
276       (ii) MOLECULE TYPE: protein
277       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:
279  Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala Ser Ser Arg Gly
280   1               5               10              15
282  Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly Lys Ala Thr Glu
283              20              25              30
285  Val Arg Val Thr Val Leu Arg Gln Ala Asp Ser Gln Val Thr Glu Val
286          35              40              45
288  Cys Ala Ala Thr Tyr Met Met Gly Asn Glu Leu Thr Phe Leu Asp Asp
289      50              55              60
291  Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val Asn Leu Thr Ile
292   65              70              75              80
294  Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu
295              85              90              95
297  Leu Met Tyr Pro Pro Pro Tyr Tyr Leu Gly Ile Gly Asn Gly Thr Gln
298              100             105             110
300  Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser Asp Phe Leu Leu
301          115             120             125
303  Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe Tyr Ser Phe Leu
304      130             135             140
306  Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys Arg Ser Pro Leu
307  145             150             155             160
309  Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu Pro Glu Cys Glu
310              165             170             175
312  Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn
313          180             185
316  (2) INFORMATION FOR SEQ ID NO: 15:
317       (i) SEQUENCE CHARACTERISTICS:
318            (A) LENGTH: 18 base pairs
319            (B) TYPE: nucleic acid
320            (C) STRANDEDNESS: single
321            (D) TOPOLOGY: linear
322       (ii) MOLECULE TYPE: DNA (genomic)
323       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:
325  AATACGACTC ACTATAGG
```

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VERIFICATION SUMMARY   DATE: 04/08/2002
PATENT APPLICATION: US/09/454,651B   TIME: 10:39:41

Input Set : A:\SEQLIST.txt
Output Set: N:\CRF3\04082002\I454651B.raw

L:5 M:220 C: Keyword misspelled or invalid format, [(1) GENERAL INFORMATION:]
L:13 M:220 C: Keyword misspelled or invalid format, [(ii) TITLE OF INVENTION:]
L:33 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:34 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]